

Mottled Grass Skipper Butterfly (Anisynta cynone cynone) Baseline coastal distribution Parham to Aldinga Beach

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Summary

This is a baseline survey for the butterfly *Anisynta cynone cynone* (Mottled Grass Skipper) along the coastal areas from Parham to Aldinga Beach. Historic occurrences data was examined with sites verified for the butterfly's presence. Additional suitable habitats were investigated and survey findings documented. The survey found fragmented distributions of the butterfly in remnant coastal habitats. One northern meta-population is identified with a further two populations present in the southern areas. The existence of the butterfly was found associated with and dependent on exotic grasses. Buckland Park and Moana colonies are the strongholds of the populations.

Introduction

Historically the butterfly most likely occurred throughout all of the coastal areas where native grasses such as *Poa poiformis var. poiformis*, (Coastal Tussock Grass), *Austrostipa spp.* (Spear Grasses) and other native grasses once occurred. Areas of Port Adelaide, Rosewater, Henley Beach, Christies Beach and Port Noarlunga once supported colonies. The current coastal distributions of the butterfly are disjunct and limited to grassy habitats with known occurrences at the following sites: Torrens Island, Moana, Maslin Beach and The Washpool at Aldinga Beach.

The butterfly's natural habitat is highly degraded and fragmented along the coastline and consequently it appears that some populations have declined. Coastal grassy habitats are subject to urban pressures from development and recreational activities.

Due to the demise of native grasses, the butterfly has substituted these for introduced species as the larval host plants and this has enabled the butterfly to persist.

The survey results will formulate a baseline distribution and population densities of the species and the description of its habitats. The baseline data constitutes a basis for future planning and potential management of the butterfly and its habitats within coastal metropolitan areas.

Anisynta cynone cynone (Mottled Grass Skipper)





Female butterfly, Photo; A. Stolarski

Male butterfly, Photo; M. Endacott

Anisynta cynone cynone has a historic distribution along the Spencer Gulf coastal areas of the Yorke to the Fleurieu Peninsulas and again from Southern Fleurieu Peninsula to the Lakes and Coorong areas south east to Robe. There is a distinct separation of the distribution by the Mt. Lofty Ranges. This geographic separation presents a distinct species variations in the underside wing colour. Spencer Gulf populations display a grey-brown underside and the Southern Fleurieu to Robe populations being orange-brown.

The butterfly has a 12 month life cycle with adults flying for a short period during mid March to mid April. The flight period varies between colonies and large numbers of the butterfly can be observed one week and very few flying the next. These large emergence events are sporadic and associated with large populations. The butterfly is usually present as a handful of adults at sites.

The butterfly spends much of its time feeding from various small flowering plants, both native and introduced. It has a relatively slow flight, however when disturbed adults will display a rapid and direct flight. The butterfly is often seen basking on dry grass, twigs or bare ground during the cooler periods of the day and retreats under shade or into vegetation during periods of elevated heat. The butterfly is localised and restricted to coastal areas where its larval food plants grow in open and partly wooded grassland habitats. The butterfly has been able to survive by larvae adapting to feeding on exotic grass species such as *Brachypodium distachyon* (False Brome) and *Ehrharta calycina* (Perennial Veldt Grass) in coastal sites.

Methodology

Survey sites were selected based on species historic records and suitable habitats identified from aerial photography and coastal habitat records.

Sites from Parham to Aldinga Beach were investigated employing a ramble method of suitable areas. The adult butterfly was targeted during known flight periods in grassy habitats and on associated flowering plants. Butterfly population densities were determined by the number of adults observed within 30 minute period (see Table 1). Lack of adult observations in a 30 minute period within an area of a site was deemed as non supportive. Sites received numerous ramble searches within suitable areas to eliminate the possibility of localised presence. Subsequent visits were conducted to sites where populations were suspected but not found initially.

Surveys were conducted during active adult flight times from 0930hrs to 1530 hrs with sunny or mostly sunny conditions and predicted daytime temperatures of 20⁰C or greater during mid March to mid April 2022.

Adults observed: 30 minute period	Deemed population density
1-5	low
6-10	medium
11-15	high
15+	very high

Table 1: Population densities.

Distributions



Fig 1: A. c. cynone distribution areas.



Fig 2: A. c. cynone population areas.



Fig 3: A. c. cynone, northern distribution.



Fig 4: A. c. cynone, southern area distribution

The survey for the butterfly *Anisynta cynone cynone* along the coastal areas from Parham to Aldinga Beach was undertaken during mid March to mid April 2022 (Fig 1). Two main coastal areas were found to contain butterfly colonies (Fig 2). Historic and adjoining areas identified as supporting suitable habitats were surveyed. The survey found fragmented distributions of the butterfly in remnant coastal habitats. Areas from Buckland Park to Greenfield Wetlands incorporating Le Fevre Peninsula and Torrens Island may form a meta-population based on the semi continuous suitable habitats (Fig 3). The two southern populations comprising of Moana and Maslin Beach areas and the Washpool areas may also comprise a metapopulation, however their coastal interconnectivity is disrupted by urban development. The existence of the butterfly was found associated with and dependent on exotic grasses.

Survey sites

• Parham

Historically the butterfly has not been recorded from Parham and was not found present. The Parham areas support mainly exotic grassy stands in the coastal hinterland surrounding the township. The sparse nature of these grassy areas is not the preferred butterfly habitat. Various flowering plants including *Scabiosa atropurpurea* (Pincushion), growing along road side verges and a favoured nectaring plant of this species, failed to attract the butterfly. • Port Gawler



Port Gawler areas contain sparse grassy areas in the dune systems. Historically there are no records for this site and the butterfly was not observed.

• Buckland Park



Historically not known to occur in this area, Buckland Park is a new addition to its current distribution. This altered coastal area now supports vast grassy extents creating an ideal habitat for the species. This area appears to be a strong hold of the northern populations with numerous adults observed, in excess of 40 in the 30 minute period (see Table 1). These were seen nectaring on *Cressa australis* (Rosinweed) along the mowed roadside sections and present flying in the grassy unkept paddocks. Historically a colony

occurred at Smithfield Plains to the west and St. Kilda to the south and most probably formed one meta-population in this Adelaide plains area prior to habitat alterations. The vast grasslands in these unkept paddocks create an ideal habitat for the species and the change of land use of this area, as seen occurring nearby, will have a detrimental impact on this stronghold population.

• St. Kilda

The butterfly has been historically recorded from this area (1984). St. Kilda area was found to support limited suitable habitat and the butterfly was not detected during this survey. With its close proximity to the Buckland Park colony the butterfly may have periodic occurrences.

• Torrens Island



Historically recorded from Torrens Island the butterfly was observed present in the medium population density range during the survey (see Table 1). The butterfly was predominantly found flying in the *Ehrharta calycina* (Perennial Veldt- grass) areas. Investigations of the grasses found larvae present confirming the recorded us of this plant. This dominant grass on the Island, being the larval host plant, is critical for this species survival. Revegetation programs must consider the impacts of grass eradication

without prior establishment of suitable substitute native grasses. Nectaring was observed on *Limonium companyonis* (Sea Lavender).



• Biodiversity Park

The species is recorded in Biodiversity Park with two adults observed (M. Endacott., 2021). The butterfly was not encountered during this survey and may be resident in low numbers avoiding detection however, the site displays low suitable grass areas in order to sustain breeding populations. The records are hypothetically deemed transient from the known colony on Torrens Island. The presence of this species presents evidence for potential natural establishment subject to suitable habitat development on site. A subsequent

future survey may determine the residency status of the butterfly.



• Taperoo Dunes

Historically no records exist for this site and the butterfly was not encountered during the survey. Small suitable grassy areas exist within this site with suitable nectaring plants available.

Tennyson Dunes



Historically the butterfly would have occurred in this area with records from Pt. Adelaide to Henley Beach. The survey did not encounter the butterfly. Tennyson Dunes contains low grass densities deemed insufficient as butterfly breeding habitats. The overall size of the dunes is sufficient to host the butterfly subject to habitat creation and may be taken into future translocation consideration. Habitat enhancement by removing exotic grasses such as *Ehrharta calycina* (Perennial Veldt- grass) will further minimise the

possibility of butterfly establishing without native grass densities being substantially increased within the entirety of the dunes system.

• Greenfield Wetlands



This man made wetland system supports vast areas of exotic grasses and creates an ideal habitat for this species. The butterfly was found present and deemed as low population based on the observations (see Table 1). It is likely to be resident in view of the habitat and future surveys may provide a different population status.

• Gillman



The survey failed to locate the species, however it may be present based on the suitability of the habitat and being located between two known colonies; Torrens Island and Greenfield wetlands. This large open site located on the west side of Grand Trunkway and the north side of the Port River Expressway contains predominantly exotic grass species and scattered weedy nectaring plants. This large site warrants further surveys, especially in the northern section.

Moana



Moana area encompasses Moana Sands Conservation Park in the north to Ochre Point in the south. These are historically know butterfly sites and are noted for their strongholds. The survey found butterflies in good numbers deeming the population as very high in density (see Table 1). Site surveys conducted in June and July 2021 found the use of *Brachypodium distachyon* (False Brome) as the larval host plant (M. Endacott. & A. Stolarski pers. obs.). Further site observations encountered female interest in

Ehrharta calycina (Perennial Veldt Grass) however ovipositing was not noticed (M. Endacott., pers. obs.). These areas are under environmental pressures from adjoining urban developments with recreational use.



Maslin Beach

Historically the butterfly is known to occur in this area and the survey confirmed its presence. The butterfly was located in the revegetation area hosting a mixture of native and exotic species and is deemed low in population density (see Table 1). The open cliff top semi grassland areas are also a prime habitat for the species, however its presence was not observed in this habitat. Future surveys may uncover its presence.





Marino Conservation Park supports vast exotic grassy weed infested areas (*Scabiosa atropurpurea* (Pincushion) mainly) and is certainly a suitable habitat for the butterfly, however its presence was not encountered during the survey. The butterfly's absence may be attributed to the historic habitat of the area and may not have supported the butterfly. • Hallett Cove Conservation Park



Hallett Cove CP has limited grassy areas deemed as suitable habitat sites however, the butterfly was not encountered during this survey. These grassy areas are limited to the south west corner and the upper ridge top sections of the park and appear to be a consequence of habitat alteration. Future surveys may encounter the butterfly.

• Aldinga Beach area



The butterfly has a historic presence in this area being recorded from Silver Sands and Aldinga Scrub Conservation Park (CP). These sites have sustained historic habitat alterations resulting in the demise of the butterfly. Survey observed individual butterflies in The Washpool area and further to the west along sections of the Main South Road (A. Lines., pers. obs.) where suitable grassy habitats are present. The butterfly is likely to be resident in the Washpool in view of the habitat and deemed low in population

density (see Table 1). The coastal dune systems were found to support low numbers of both native and exotic grasses and the butterfly was not found present in these. High grass pressures from kangaroos within the historic distribution areas of Aldinga Scrub CP are also noted.

Discussion

The butterfly was found to have a disjunct distribution along the coastline with four distinct population areas; Buckland Park, the general area comprising of Le Fevre Peninsula, Torrens Island and Salisbury Wetlands, Moana area and The Washpool area. The butterfly may occur in other in-between areas as discrete populations unsurveyed or not detected. Potential native larval host plants; *Austrostipa* spp., *Austrodanthonia* spp. and *Poa* spp. were surveyed in known population areas during June and July 2021 (prior to this baseline survey) and no evidence of use was found (M. Endacott. & A. Stolarski). Observations indicate that the butterfly depends entirely on introduced grass species as its larval host plants for

survival. The removal of these exotic species, especially the Perennial Veldt Grass without prior native grasses revegetation works may have detrimental effects on populations. Experimental larval translocations were undertaken during July 2021 with larvae removed from *Brachypodium distachyon* (False Brome) and placed onto selected native grasses with mixed results (see Table 2, A. Stolarski pers. obs.) These observations suggest that these grasses may be used as larval host plants in the wild. Further research is needed to determine this hypothesis and if proven these grasses should form part of the revegetation programs in suitable coastal areas.

Translocated larval host plant	Larval acceptance
Microlaena stipoides (Weeping Grass)	yes
Chloris truncate (Windmill Grass)	yes
Poa poiformis var. poiformis (Blue Tussock-grass)	no
Austrodanthonia pilosa (Velvet Wallaby Grass)	no

Table 2: translocated host plant larval acceptance.

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